

LATERAL AND LONGITUDINAL GRIP VARIATION

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This presentation

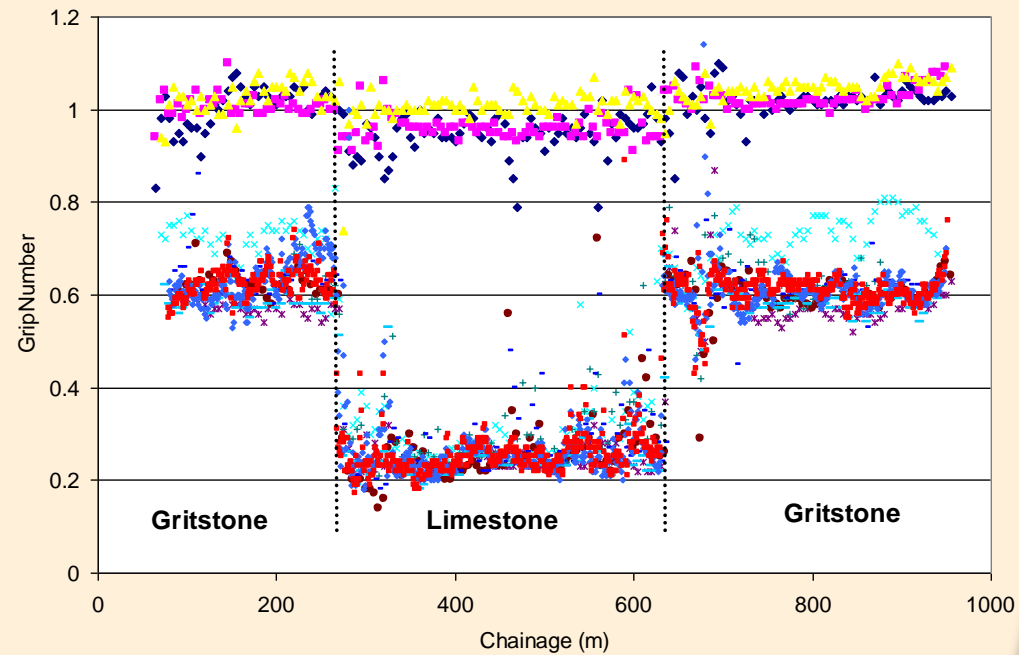
- Looks at combining the traditional straight line measurement of grip with lateral variation
- Uses data from 2 devices
- Gives some examples



Asphalt / tire / vehicle + time



Why wet grip?



Doing research

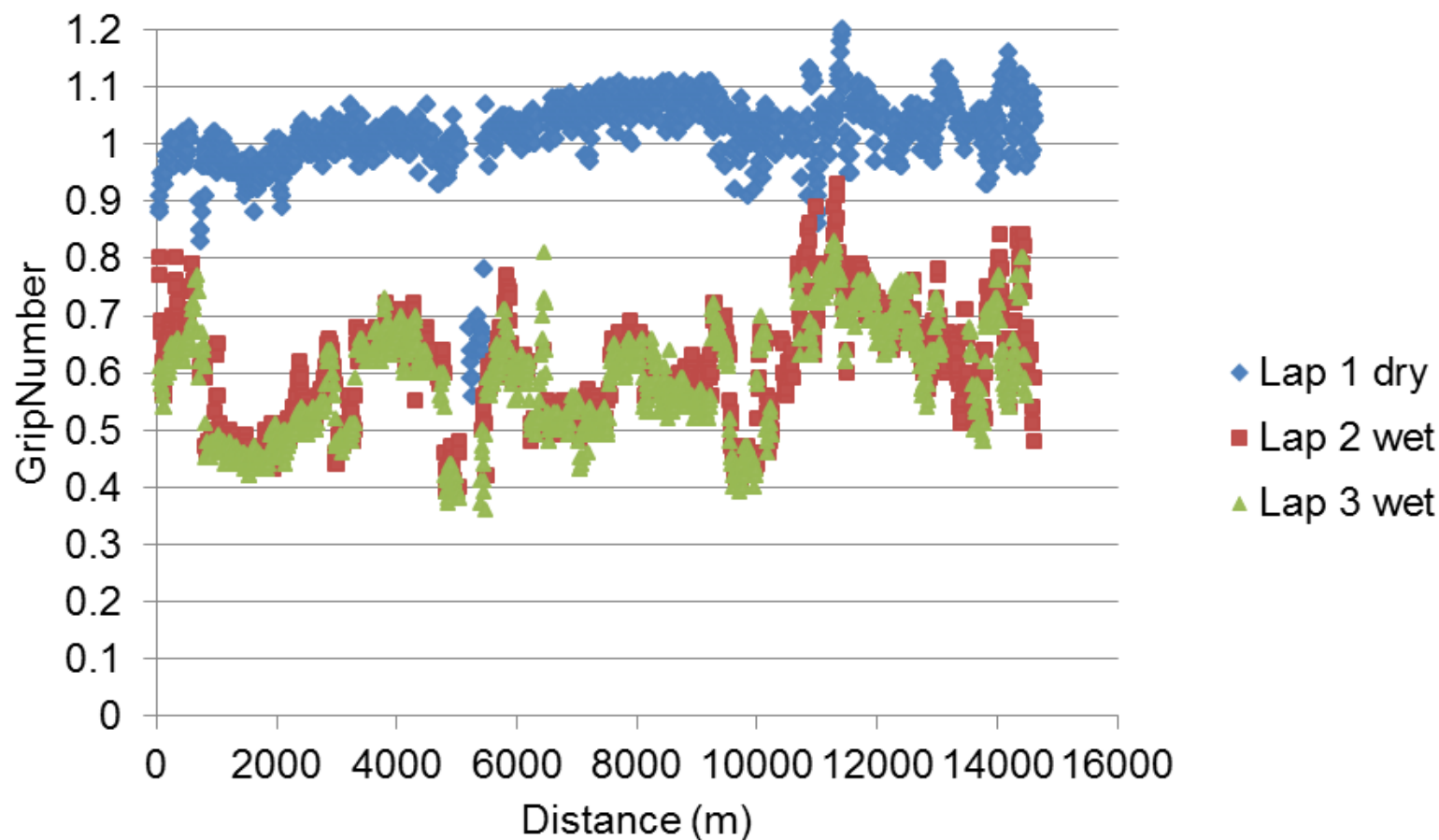




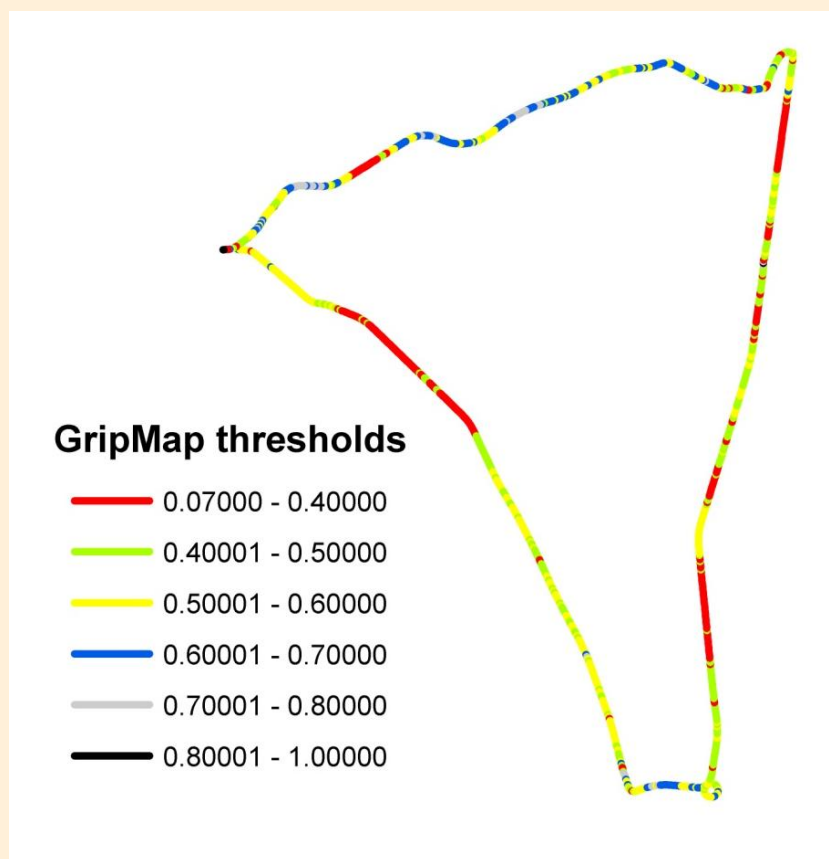
NW 200 - road racing in N. Ireland



Difference between dry and wet grip (at 50km/h)



Plotting grip data using GIS







Vehicle properties taken from Racelogic VBox3i



Undergraduate project relating what a kart is doing in relating to grip

Dissertation and Research

6.0 Data Analysis and Discussion

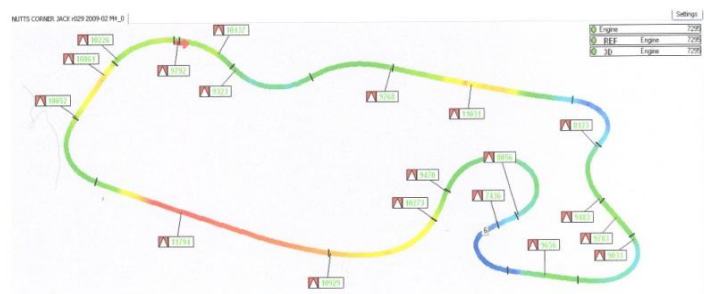


Figure 6.6 – Engine RPM Analysis

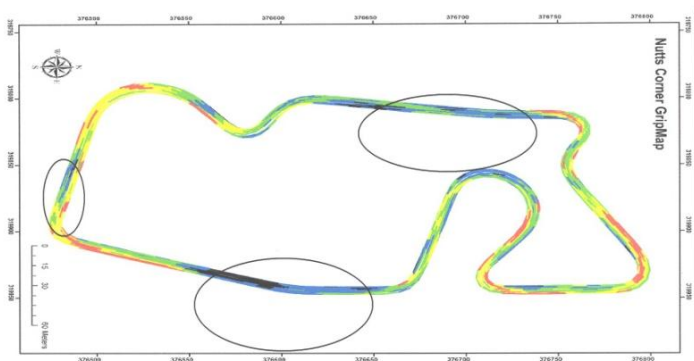


Figure 6.7 – Map of Colour Representation for Grip

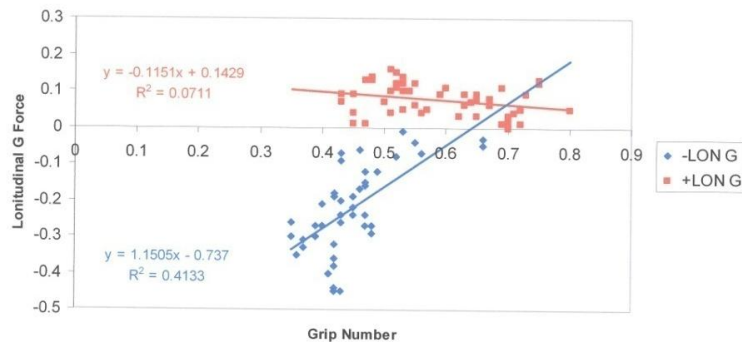


Figure 6.10 – Further Analysis of Relationship between Longitudinal G Force and GripNumber

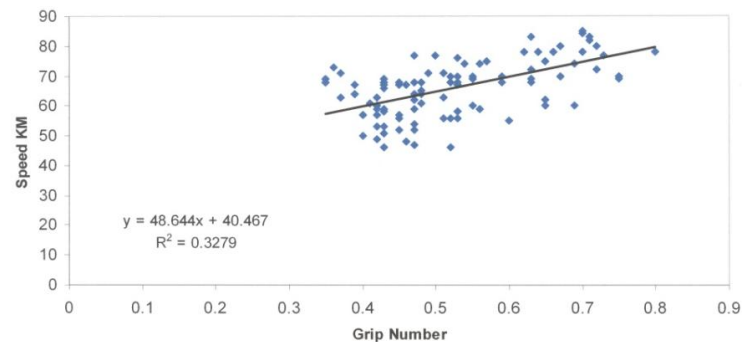


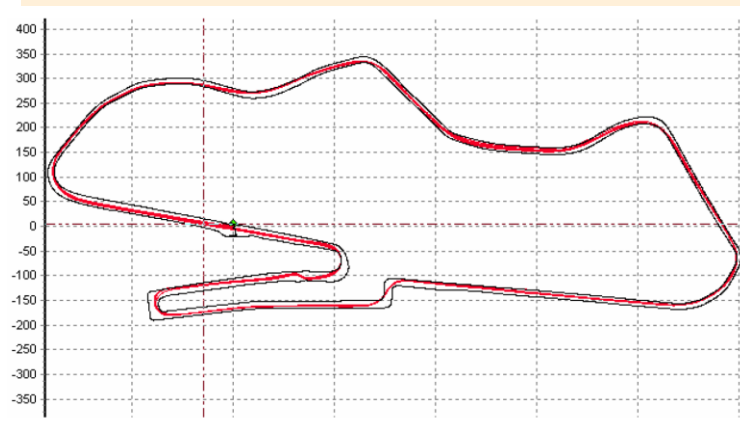
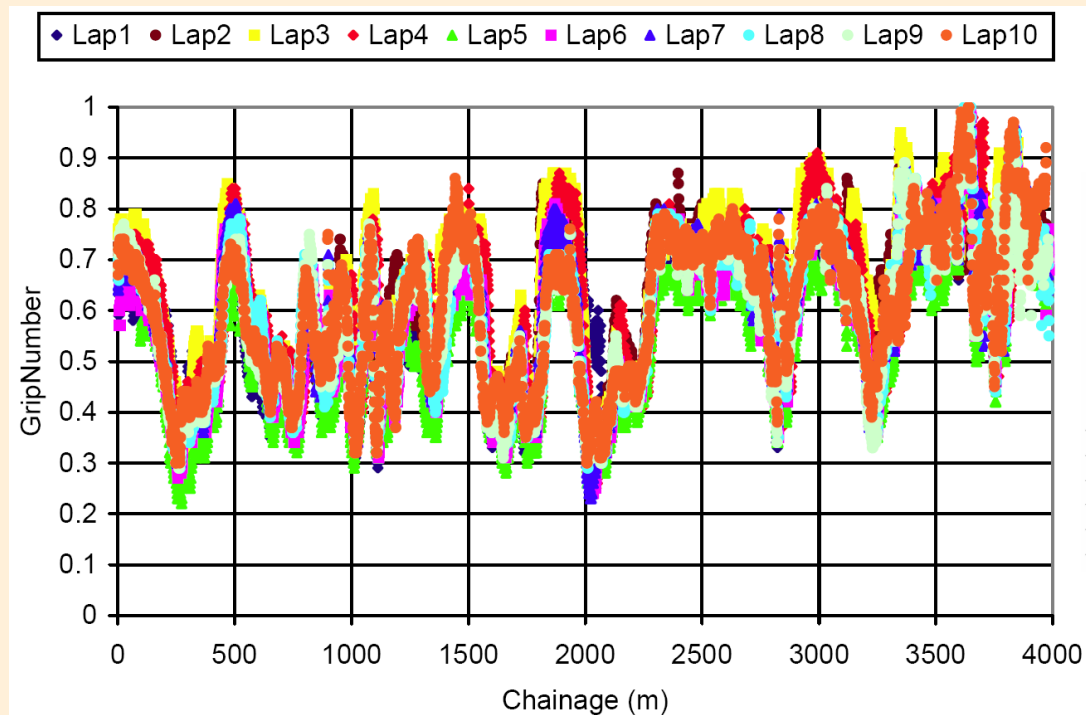
Figure 6.14 – Plot of Speed vs. GripNumber

High pressure water used to improve race track grip at slippery corners

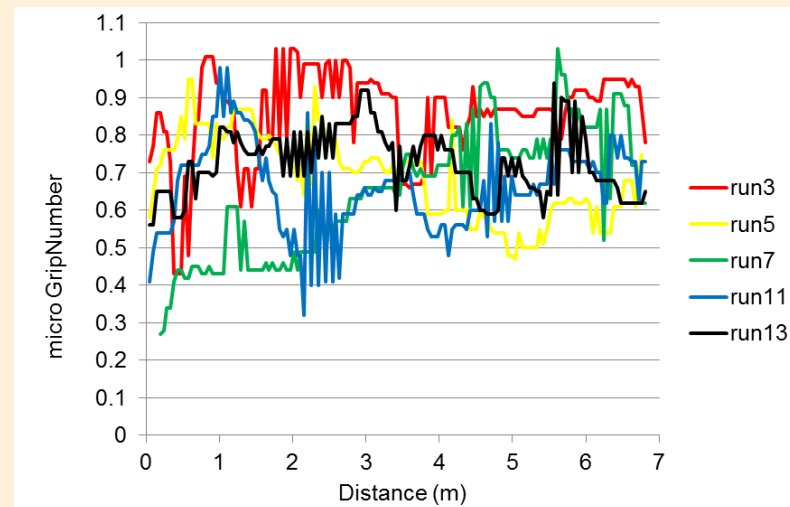
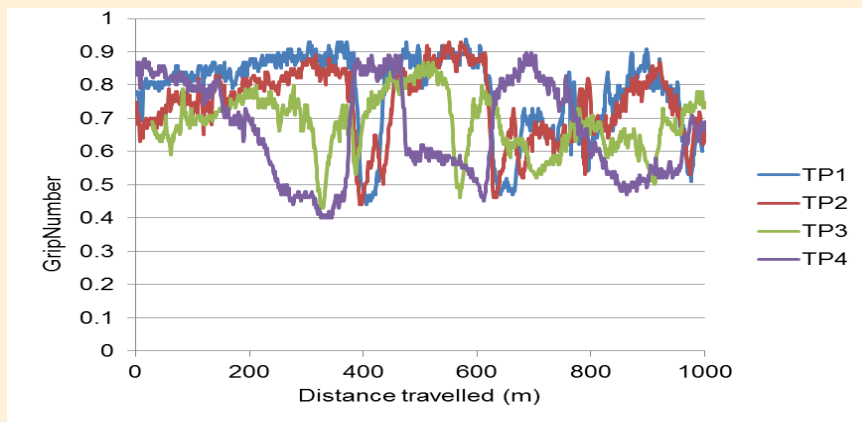
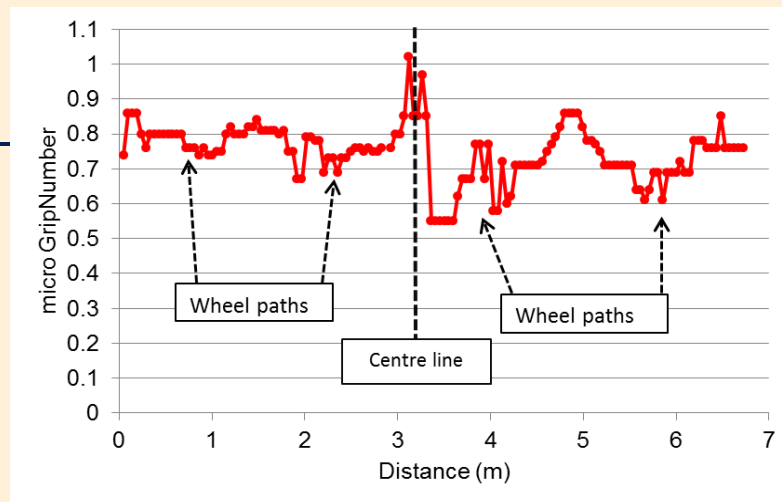




Huge variation in wet grip around the track in the racing line



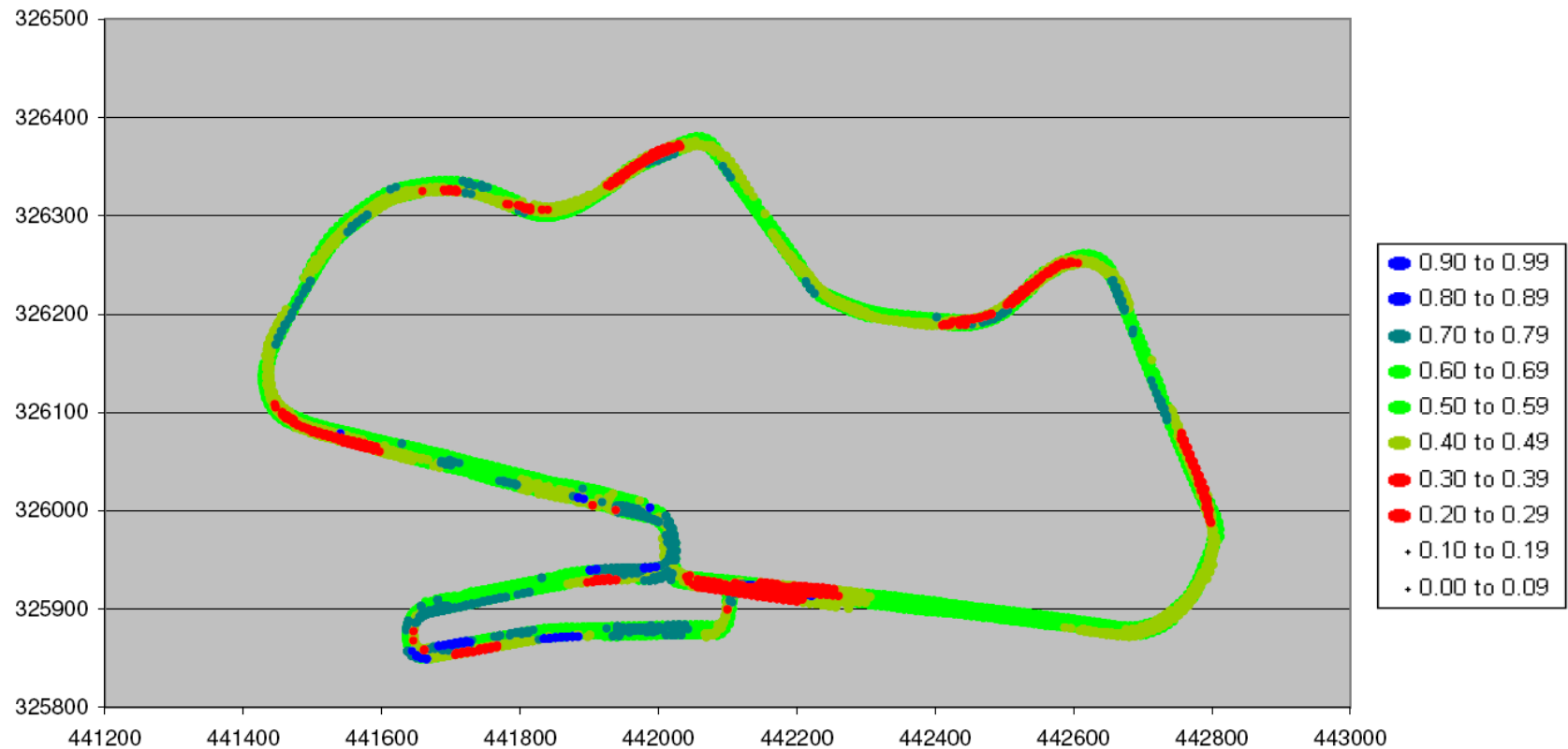
Longitudinal and lateral variations



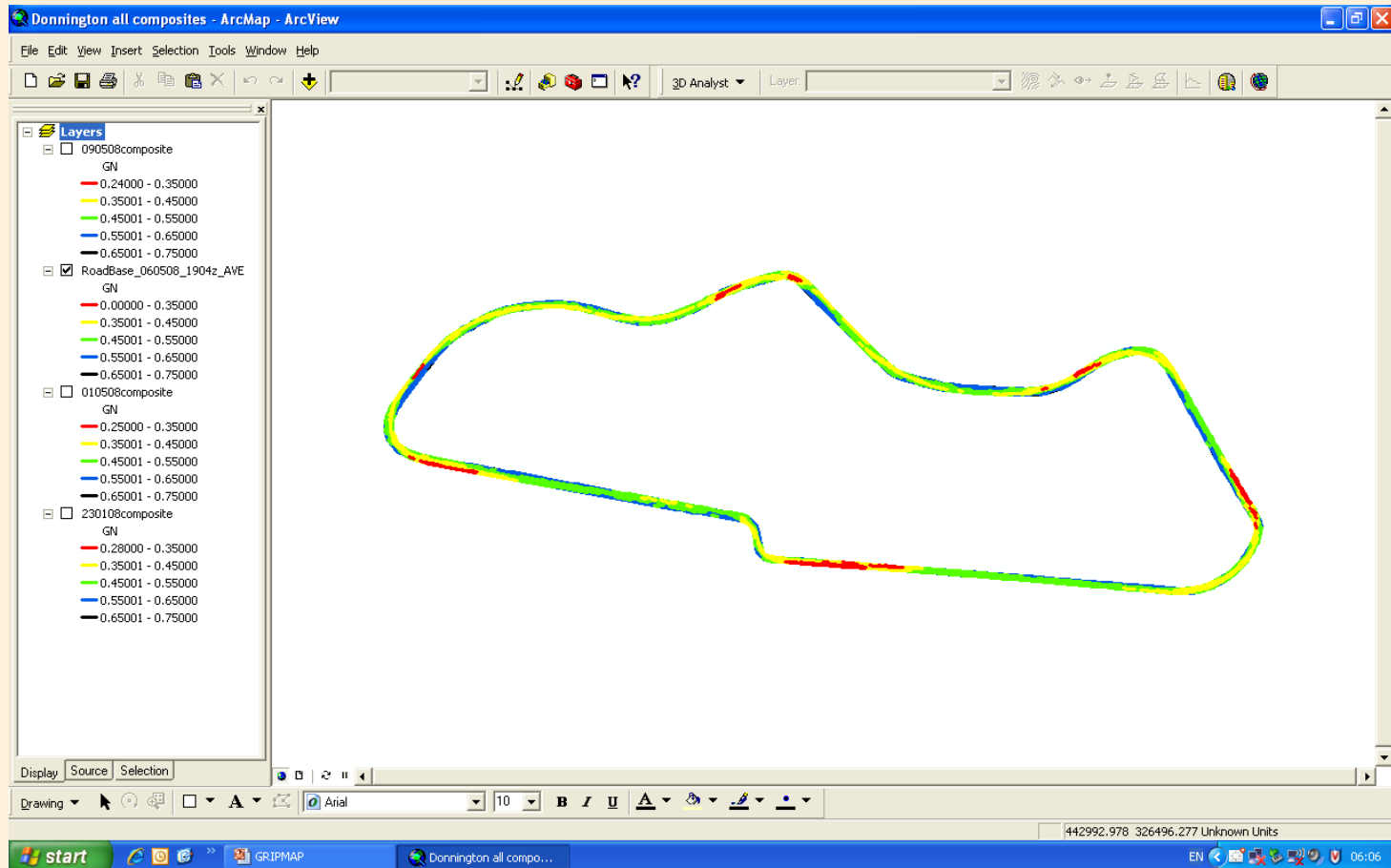
Measured grip and position

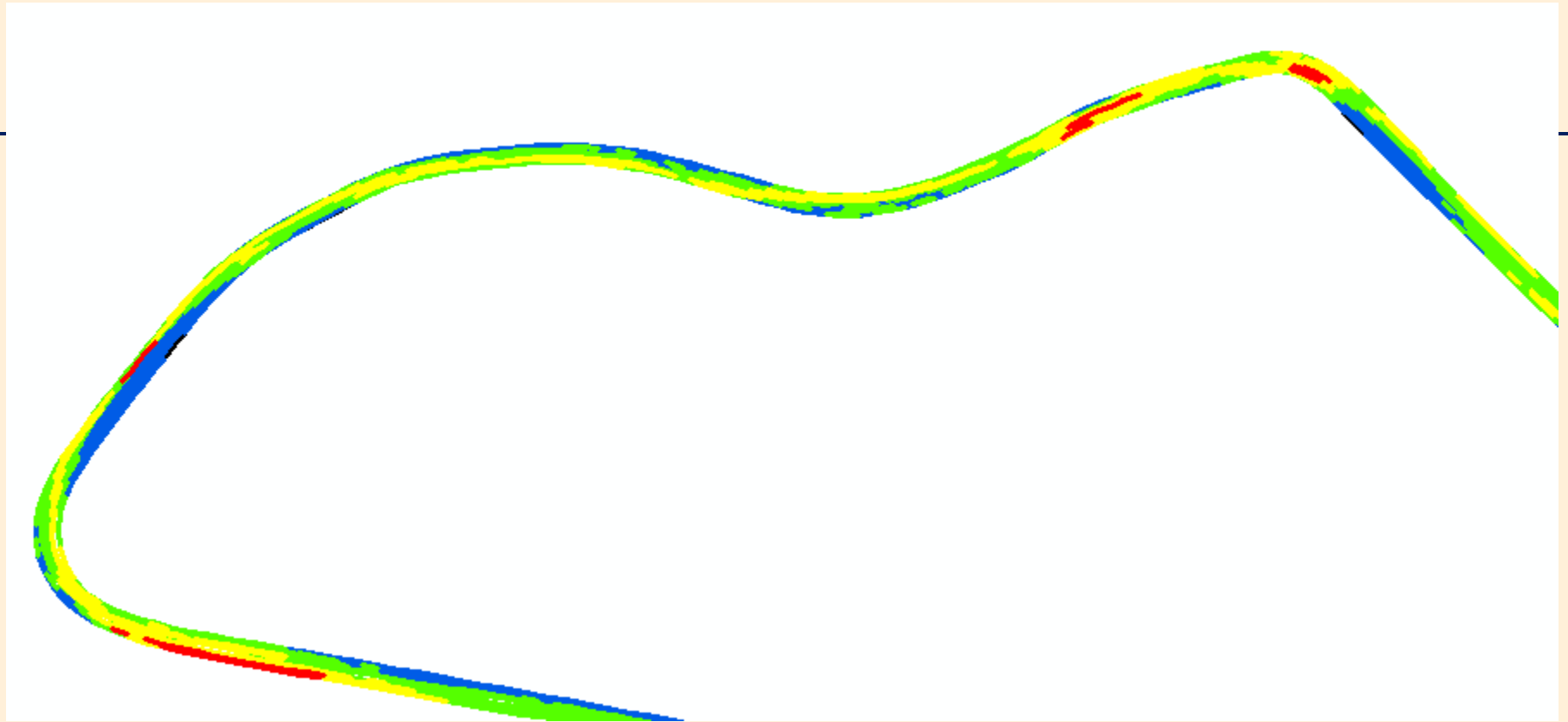


1st attempt to plot GPS grip data using Excel



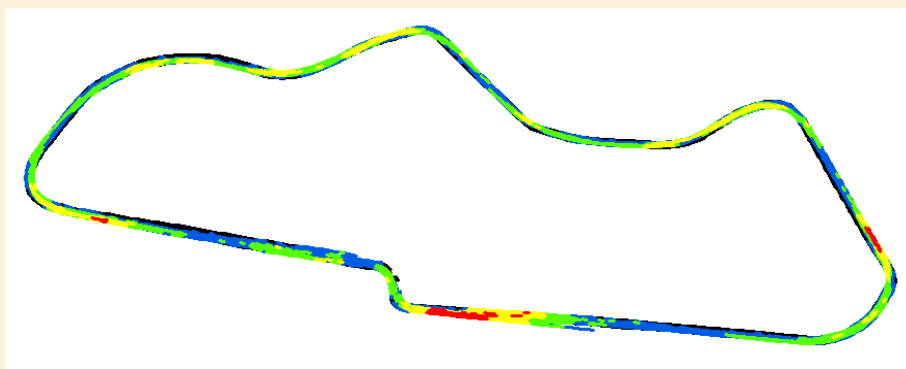
Much easier using GIS



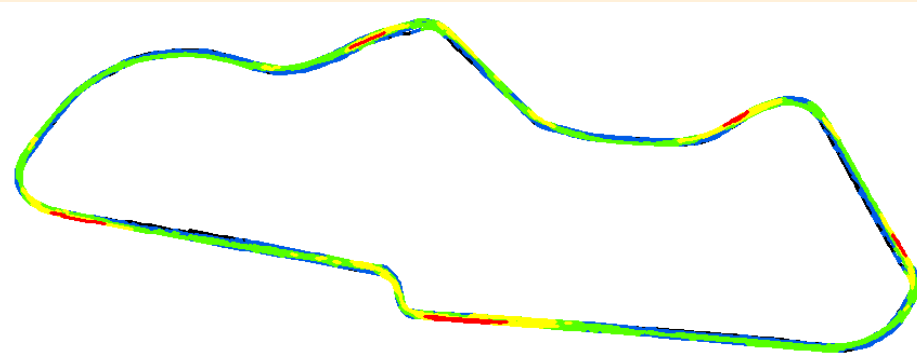


Short-term variations

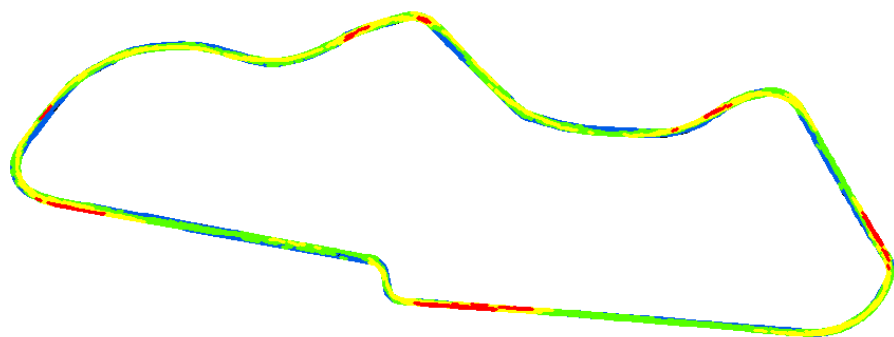
23rd January



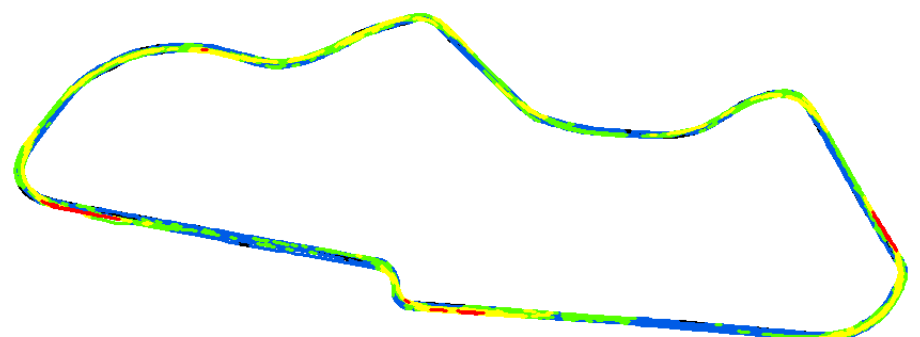
1st May



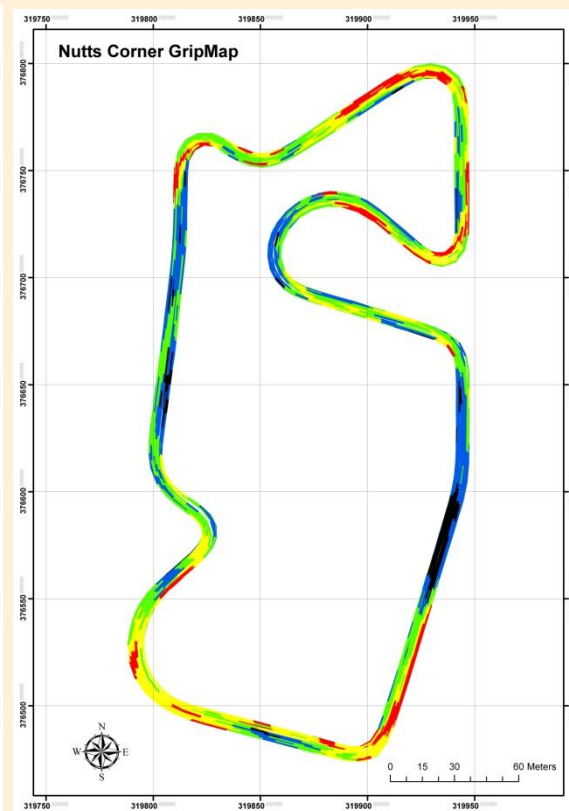
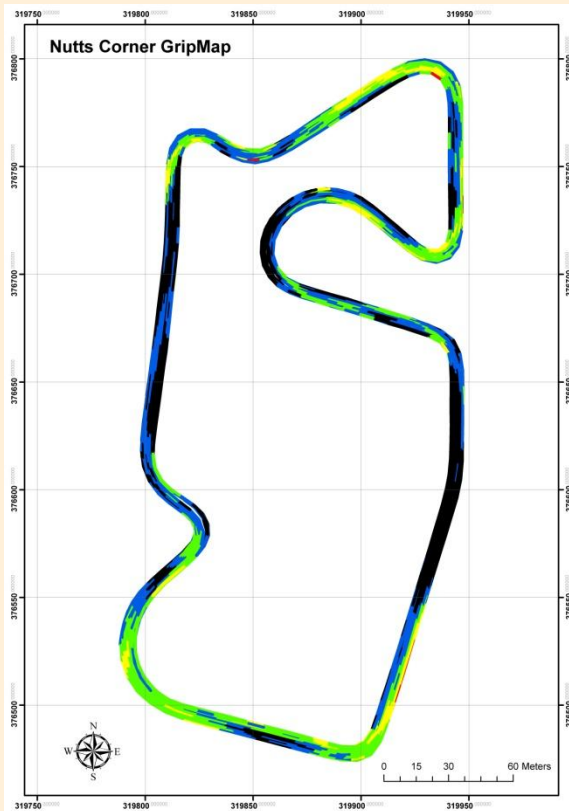
6th May



9th May




Same data with differing thresholds



Silverstone F1 track example

Circuit
UK Guide
By Les Charneca



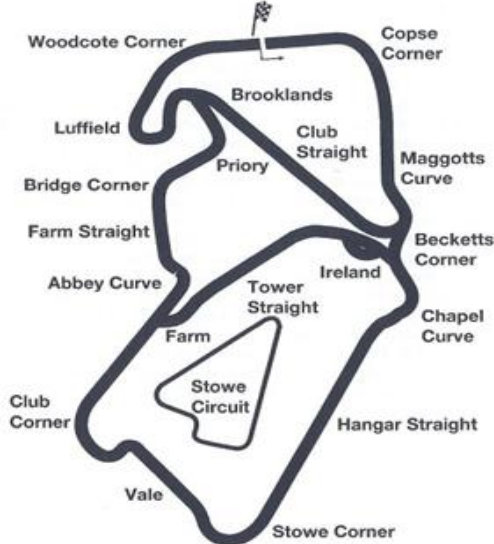
CIRCUITGUIDES
THE FAST WAY ROUND **ocom** In association with:

ARDS APPROVES TO

MSA MOTOR SPORTS ASSOCIATION UNITED KINGDOM

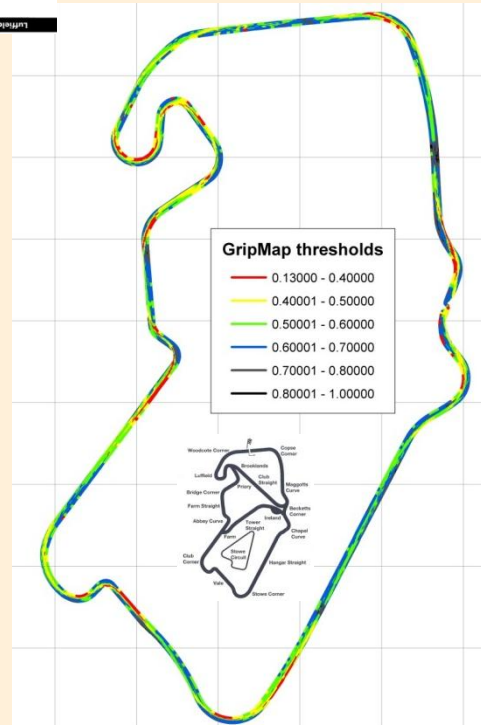
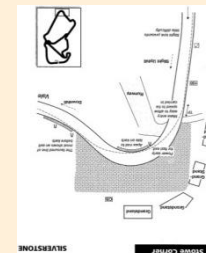
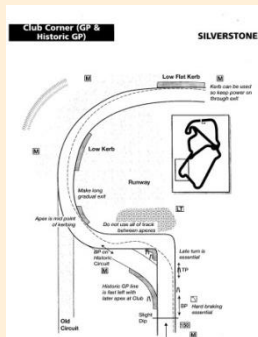
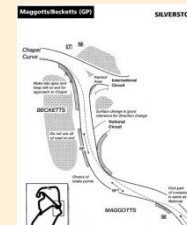
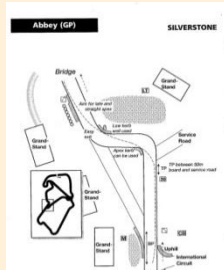
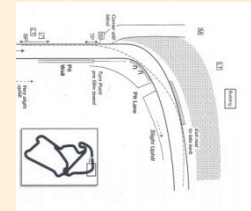
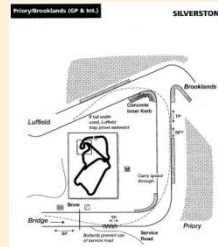
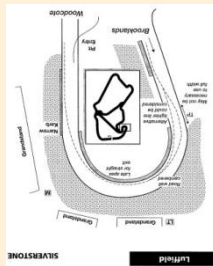
TRACK AND RACE CARS
www.trcmagazine.com

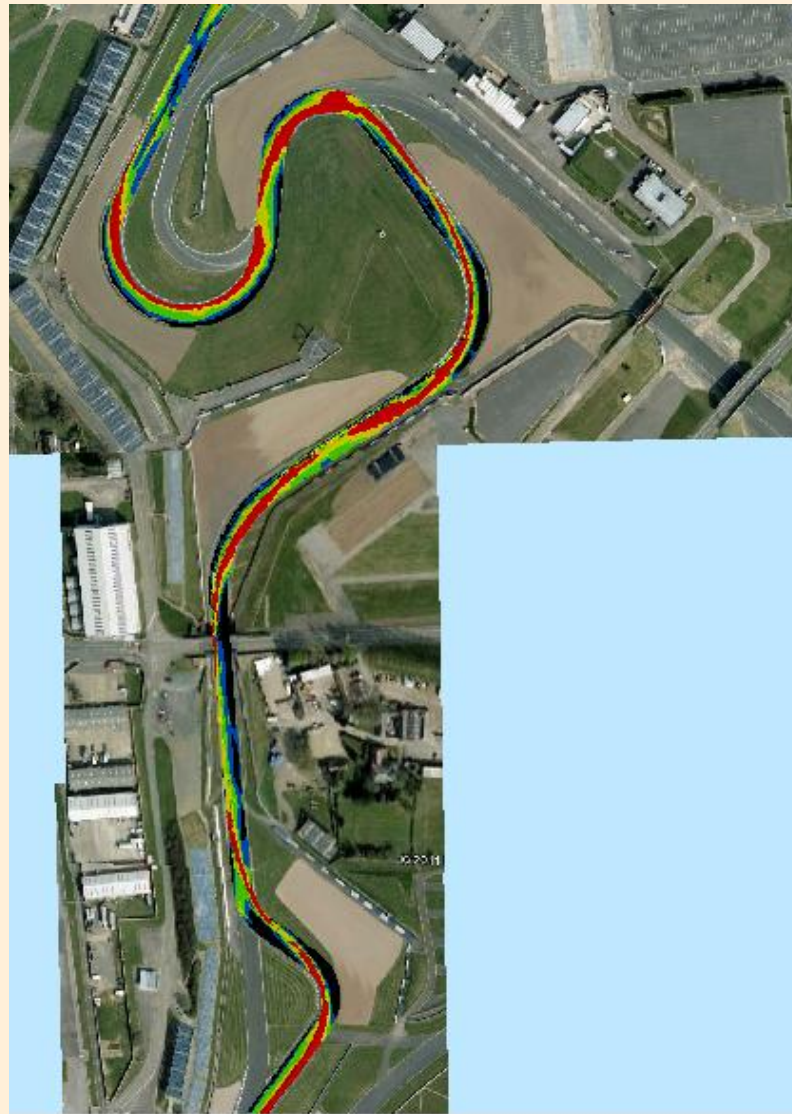
SILVERSTONE
Northamptonshire

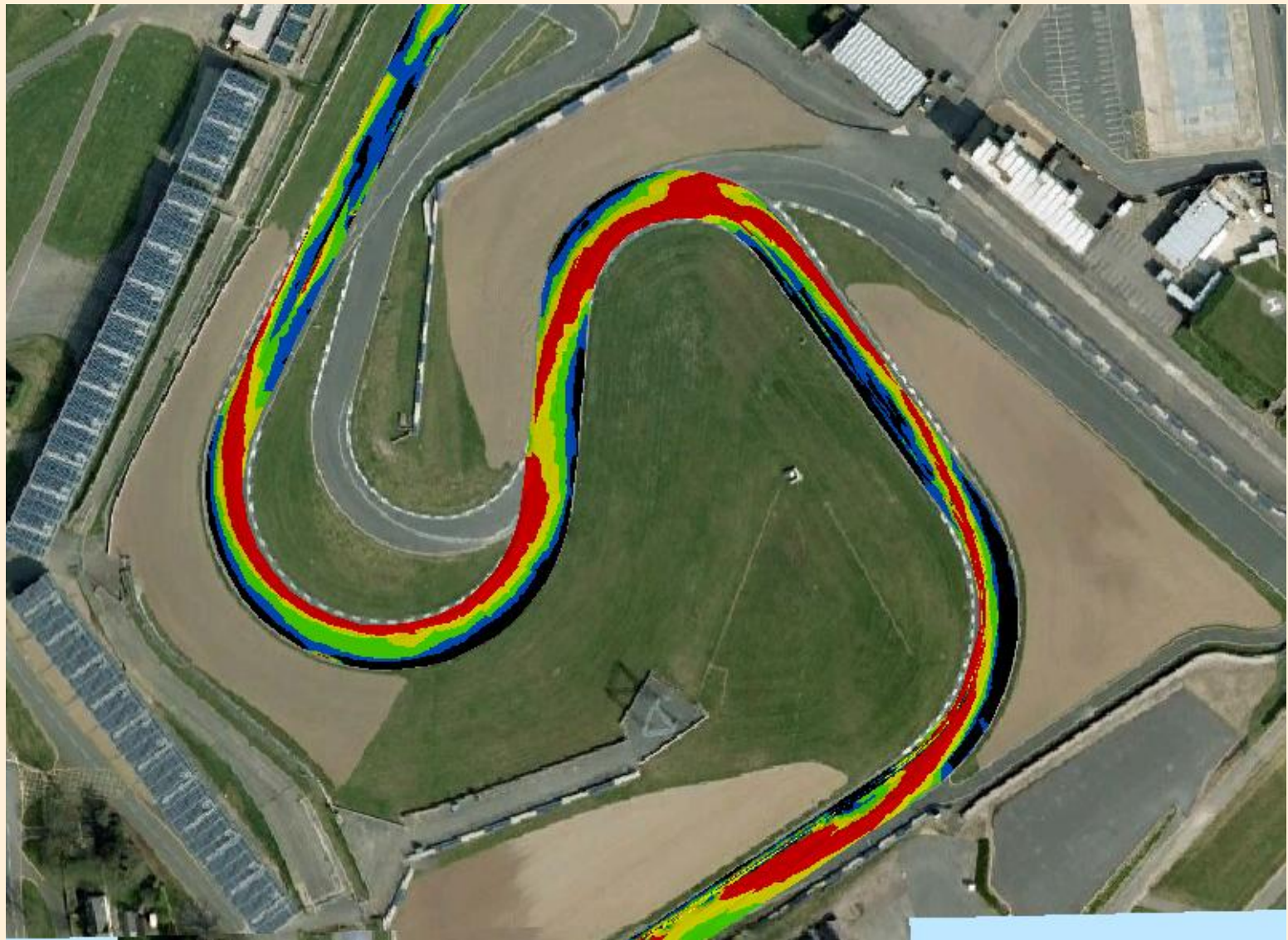


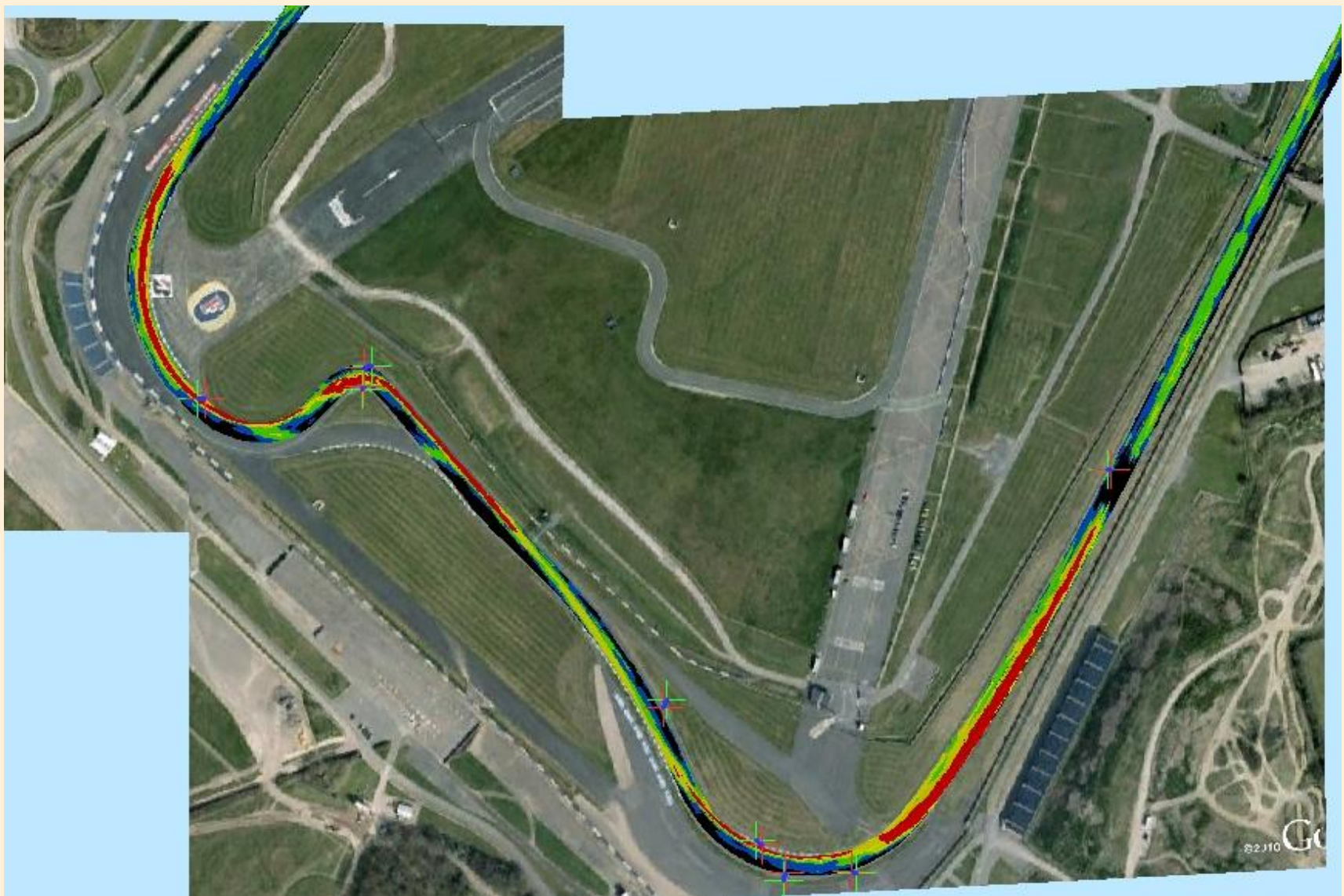
Woodcote Corner, Copse Corner, Brooklands, Club Straight, Luffield, Priority, Maggotts Curve, Bridge Corner, Farm Straight, Becketts Corner, Abbey Curve, Tower Straight, Ireland, Chapel Curve, Farm, Stowe Circuit, Hangar Straight, Club Corner, Vale, Stowe Corner

Lap distance (miles)	
GP	3.194
International	2.249
National	1.639
Historic GP	3.144







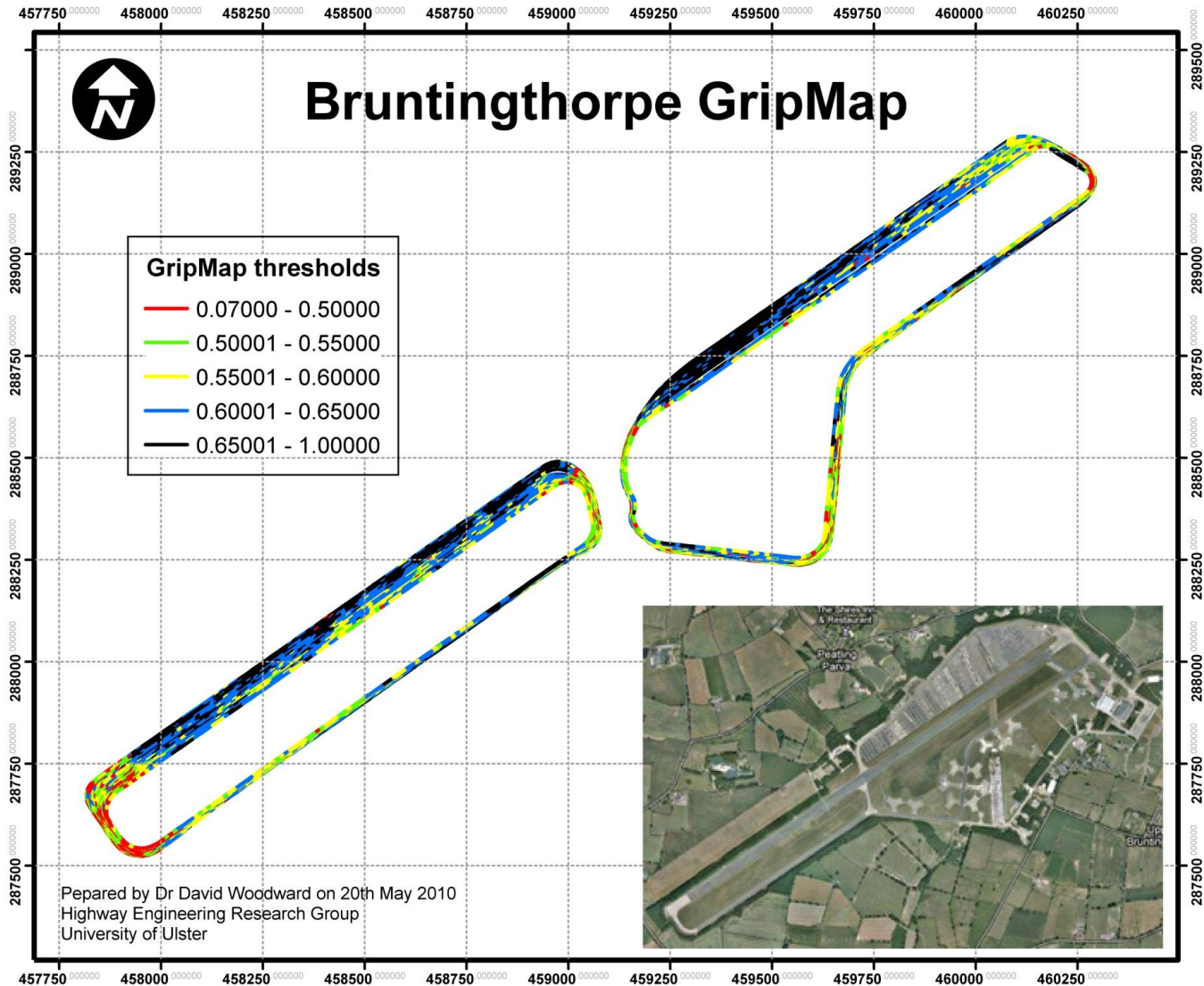


Track day at Silverstone

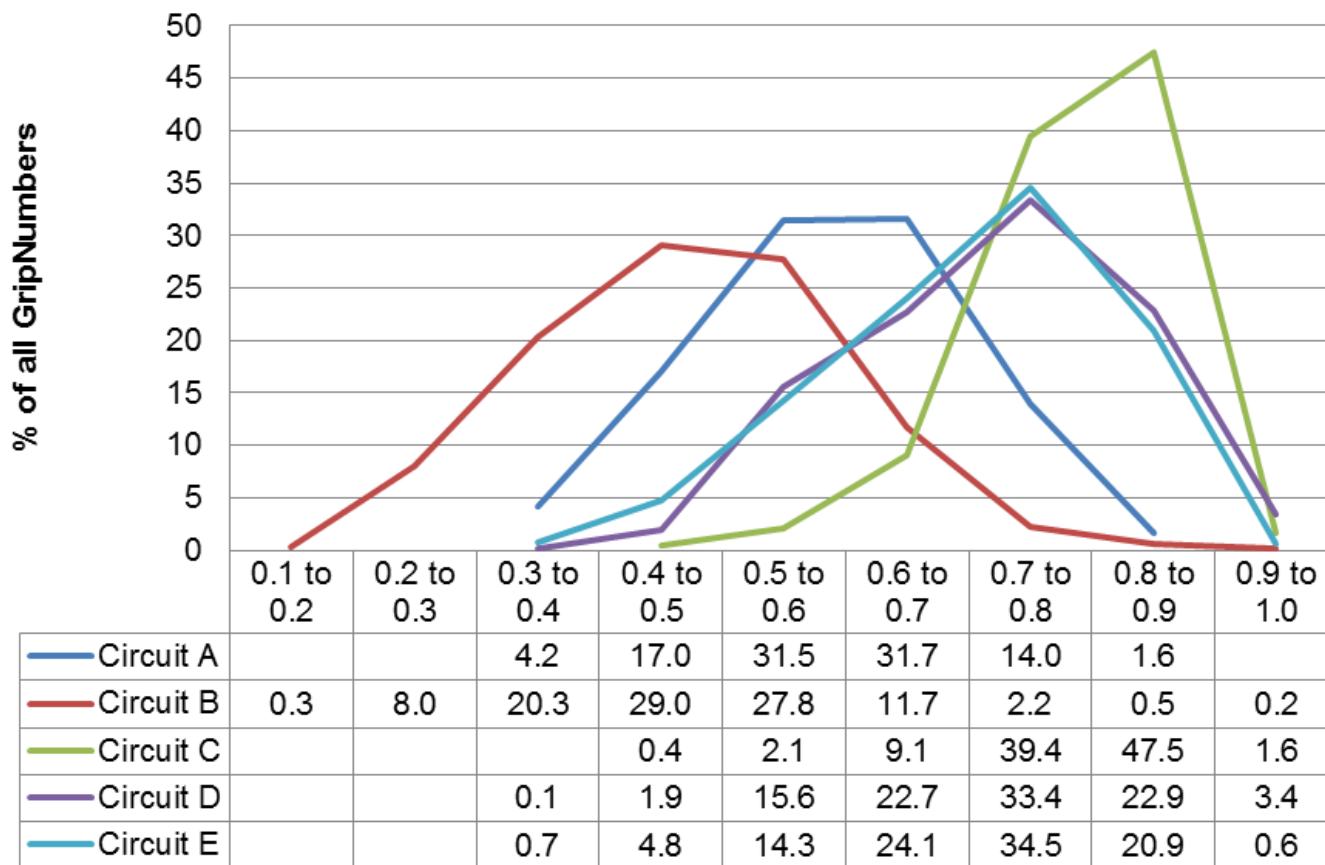


Ferrari 360 F1™ Modena		Overall mark:	88%
Instructor:	Mr Jacobs	Instructor's comments:	A Good Fast Drive Handled those 2 2 "Slow" Corners on the circuit. well done.
Cornering			
Corner line preparation:	B+		
Corner approach and positioning:	B		
Mid corner balance:	B		
Corner exit and line:	B-		
General			
Correct choice of gears:	A		
Appropriate speed for conditions:	A		
Response to instruction:	B	Instructor's signature:	[Signature]

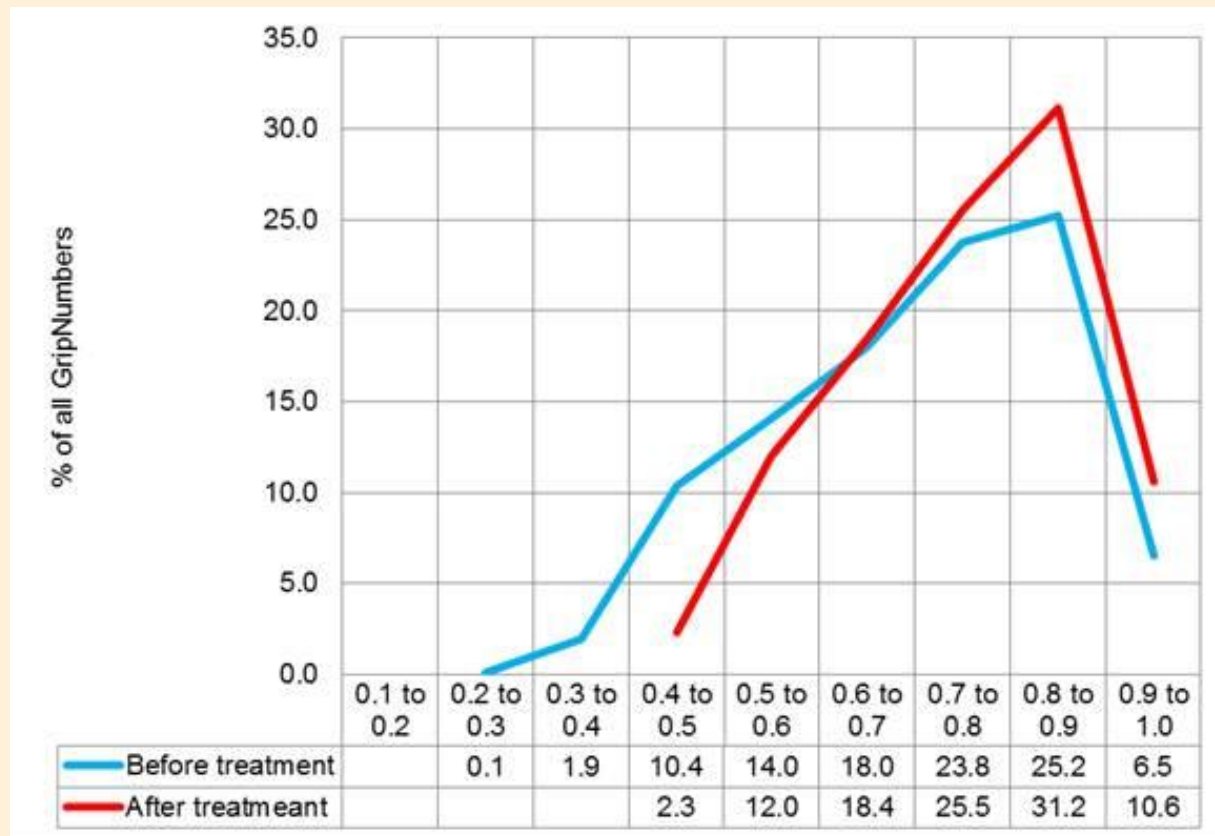
A Excellent B Very good C Good D Fair E Attention required



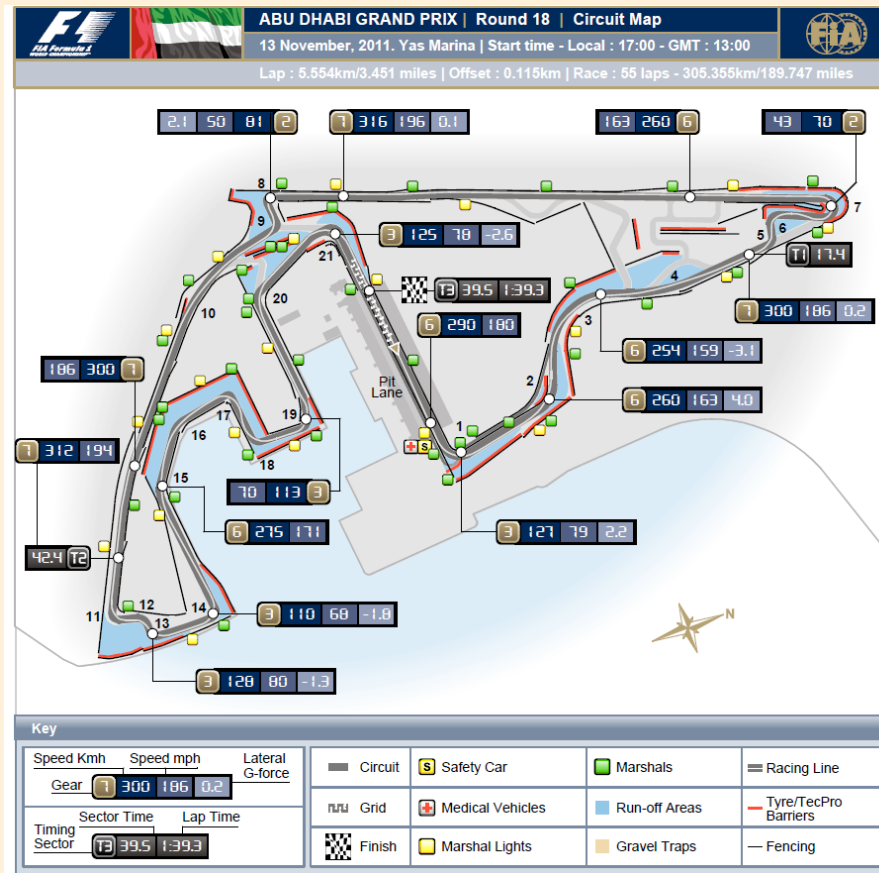
Using frequency distributions to compare tracks



To show the effect of treating slippery corners



Yas Marina F1 track example



Our GripMap – 3 hours work



Yas Marina F1 track

- Abu Dhabi
- \$600 million track
- Part of \$2 billion Yas Island development
- Wanted best race track in the world

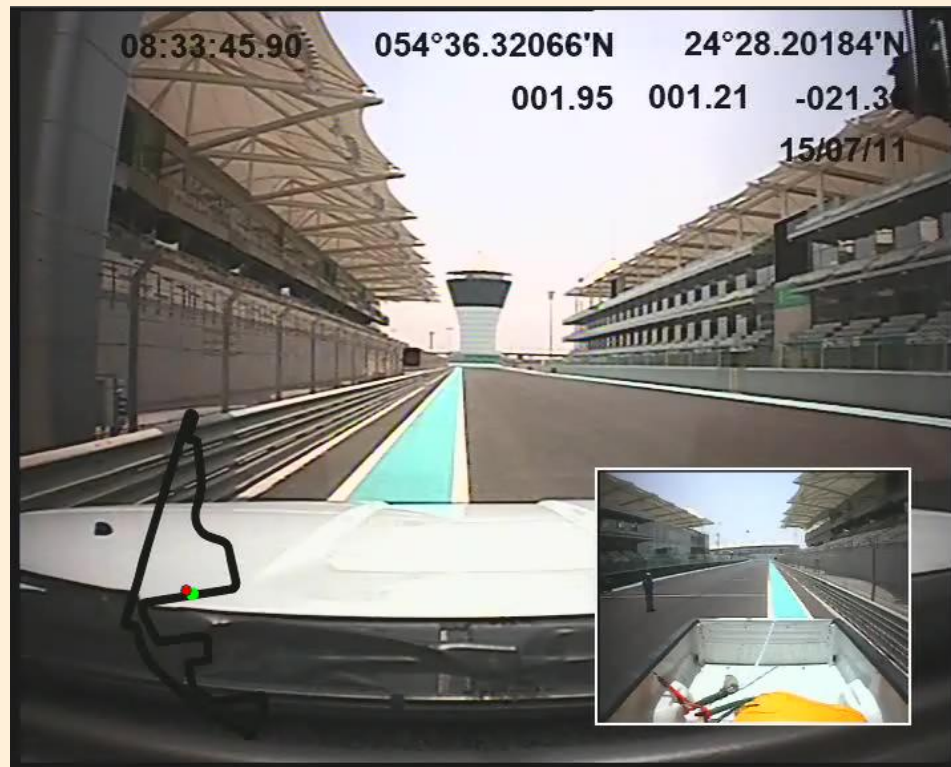


Unpacking the GripTester





Slowest lap and slowest accident

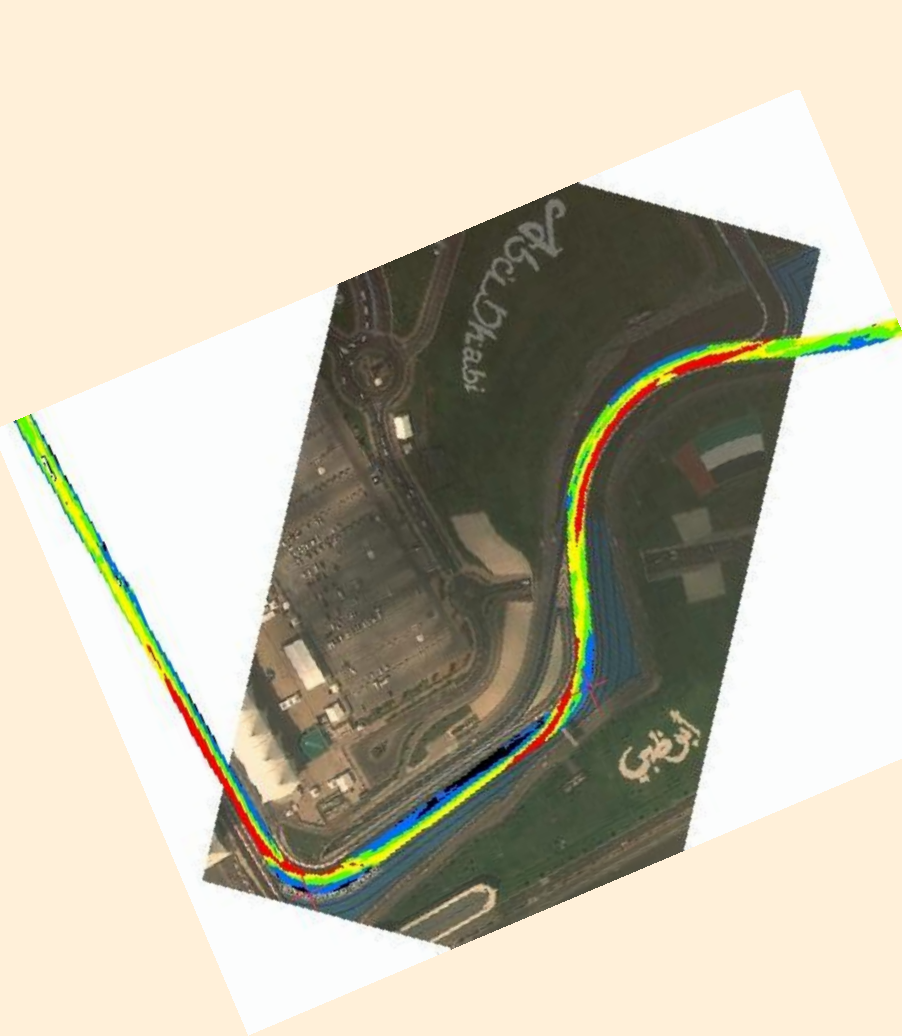


Damage after rolling the GT at 20mph



GripMap / Google Earth overlays





My co-authors



Packing up



Race control



Thankyou

